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W. R. Wilde, Esq., on the part of the Rev. E. W. Barnwell, of Rathlin, presented three plaster casts of celts, and an original bronze socketed celt, from the neighbourhood of Cape Finisterre; he also exhibited some stone celts, found by that gentleman at Carnac, in Britanny. Mr. Wilde also presented an iron sword, found in the Boyne, on the part of Dr. Drew, of Drogheda; and a small copper ring, plated with gold, similar to No. 287 in Catalogue, Part III., p. 88.

The Rev. Dr. Reeves, on the part of the Rev. William Handcock, of Colehill House, presented to the Academy an original letter of Oliver Goldsmith, written to the donor's maternal grandfather, Robert Bryanton, Esq., of Ballymahon, dated London, August 14, 1758. He also, on behalf of the same gentleman, exhibited another letter from Oliver Goldsmith to Mr. Bryanton, written at an earlier date.

The thanks of the meeting were voted to the donors.

On the recommendation of Council, it was—

Resolved,—That the sum of £50 be placed at the disposal of the Council for the purchase of Antiquities, and for the arrangement of the Museum.

MONDAY, MAY 26, 1862.

The Very Rev. Charles Graves, D. D., President, in the Chair.

Robert M'Donnell, M. D., read a paper "On the Lateral Line in Fishes."

The Rev. Professor Haughton read the following paper:—

On the Rain-Fall and Evaporation in Dublin in the Year 1860.

The observations, of which the following Tables contain the results, were made in Dublin, on the roof of the Magnetical Observatory, with a cylindrical glass vessel, eight inches in diameter, freely exposed to both rain-fall and evaporation.

I have added the daily rain-fall, the direction of the wind, and the dew point, observed at 10 a. m. From these observations it appears that the evaporation exceeded the rain-fall during the first fifty weeks of the year by 1·62 inches; the rain-fall during that time having been 34·643 inches (to which was added during the last sixteen days of the year 1·239 inches—making a total rain-fall of 35·882 inches); and the evaporation during the fifty weeks amounted to 36·263 inches, leaving a balance in favour of evaporation of 1·62 inches.

During twenty-three weeks of the entire fifty weeks the rain-fall exceeded the evaporation by 11·40 inches; and during twenty-six weeks the evaporation exceeded the rain-fall by 13·02 inches, and in one week they were equal to each other.

DUBLIN MAGNETICAL OBSERVATORY, 1860.

JANUARY.					FEBRUARY.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew point.	Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew point.
	Inche .	Inches.				Inches.	Inches.		
1	. .	·000	S. W.	. .	1	.	·001	N. W.	29·9°
2	. .	·014	S. W.	37·9°	2	. .	·002	W.	32·5
3	. .	·440	S. S. E.	49·0	3	. .	·001	S. W.	32·4
4	. .	·065	S. W.	41·7	**4**	+ 0·05	·001	S. W.	45·7
5	. .	·052	N. W.	38·5	5	. .	·020	S. W.	. .
6	. .	·200	N. W.	34·8	6	. .	·082	N. W.	32·5
7	+ 0·50	·002	W.	35·5	7	. .	·000	W.	40·3
8	. .	·164	S. W.	. .	8	. .	·160	N. W.	44·0
9	. .	·345	S. W.	42·2	9	. .	·004	N. W.	28·7
10	. .	·001	N. W.	31·5	10	. .	·001	N. W.	27·5
11	. .	·000	S. E.	31·4	**11**	+ 0·03	·103	W.	33·9
12	. .	·198	S. E.	44·3	12	. .	·002	E.	. .
13	. .	·048	S. E.	45·5	13	. .	·044	N. W.	27·2
14	+ 0·54	·005	S. E.	47·3	14	. .	·005	N.	28·5
15	. .	·015	S. E.	. .	15	. .	·013	W.	35·4
16	. .	·009	S. W.	34·9	16	. .	·001	N. N. W.	42·4
17	. .	·014	S. S. E.	36·1	17	. .	·000	N. N. W.	41·6
18	. .	·013	S. E.	38·8	**18**	− 0 23	·000	N. W.	37·5
19	. .	·366	S. W.	37·5	19	. .	·008	W.	. .
20	. .	·072	W.	38·0	20	. .	·011	W. N. W.	28·0
21	+ 0·40	·293	S. W.	37·0	21	. .	·001	W. N. W.	33·1
22	. .	·313	W. S. W.	. .	22	. .	·000	S. E.	32·2
23	. .	·007	S. W.	35·3	23	. .	·000	S. S. W.	43·7
24	. .	·052	W. S. W.	37·9	24	. .	·000	S.	42·1
25	. .	·120	W.	34·8	**25**	− 0·34	·000	S. S. W.	42·9
26	. .	·060	S. E.	35·0	26	. .	·018	S. S. W.	. .
27	. .	·988	N. W.	35·6	27	. .	·284	W. S. W.	32·5
28	+ 1·00	·002	N. W.	31·0	28	. .	·047	W.	35·7
29	. .	·036	S. W.	. .	29	. .	·029	S. W.	35·1
30	. .	·044	S. W.	44·5					
31	. .	·026	W.	30·8					
		3·964					0·838		

DUBLIN MAGNETICAL OBSERVATORY, 1860.

MARCH.					APRIL.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew point.	Day	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.
	Inches.	Inches.				Inches.	Inches.		
1	. .	·001	S. S. W.	83·6°	1	. .	·100	S. W.	. .
2	. .	·015	S. W.	33·6	2	. .	·178	N. W.	35·9°
3	– 0·22	·001	S. W.	38·4	3	. .	·021	S. W.	39·8
4	. .	·109	N. W.	. .	4	. .	·020	S. E.	44·3
5	. .	·003	W. N. W.	36·8	5	. .	·027	N. E.	40·0
6	. .	·000	W. S. W.	45·1	6	. .	·002	N. N. E.	*Easter Holidays.*
7	. .	·073	N. E.	36·8	**7**	– 0·59	·000	S. W.	
8	. .	·001	E. N. E.	33·1	8	. .	·064	S. W.	
9	. .	·000	N. N. E.	37·5	9	. .	·226	N. W.	
10	– 0·18	·101	N. W.	35·6	10	. .	·001	N. W.	
11	. .	·000	S. S. W.	. .	11	. .	·000	S. S. E.	40·8
12	. .	·262	N. W.	37·1	12	. .	·568	S. E.	45·4
13	. .	·003	N. W.	34·2	13	. .	·275	N. N. W.	37·9
14	. .	·350	S. E.	36·0	**14**	+ 0·34	·001	E.	39·3
15	. .	·126	S. W.	41·7	15	. .	·000	E. S. E.	. .
16	. .	·086	S. W.	42·8	16	. .	·000	E.	45·7
17	+ 0·48	·090	S. W.	47·3	17	. .	·018	E.	40·7
18	. .	·010	S. W.	. .	18	. .	·000	N. E.	39·1
19	. .	·122	S. W.	43·7	19	. .	·000	N.	33·7
20	. .	·052	S. W.	43·5	20	. .	·000	N. N. E.	32·4
21	. .	·405	W. S. W.	38·0	**21**	– 1·05	·000	N. N. W.	32·4
22	. .	·038	W.	36·0	22	. .	·000	N. W.	. .
23	. .	·070	S.	44·2	23	. .	·182	N. W.	33·9
24	0·00	·174	W.	37·2	24	. .	·055	N.	38·2
25	. .	·140	N. W.	. .	25	. .	·001	N. E.	35·9
26	. .	·080	N.	34·6	26	. .	·000	E.	41·0
27	. .	·000	W.	42·6	27	. .	·000	E. S. E.	44·2
28	. .	·025	S. W.	49·6	**28**	– 0·74	·000	S. S. E.	47·3
29	. .	·142	S. W.	47·2	29	. .	·682	S. S. E.	. .
30	. .	·080	N.	46·4	30	. .	·204	S. S. W.	54·3
31	– 0·14	·011	S. S. E.	49·4					
		2·570					2·625		

DUBLIN MAGNETICAL OBSERVATORY, 1860.

MAY.					JUNE.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.	Day	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.
	Inches.	Inches.				Inches.	Inches.		
1	. .	·001	S. E.	51·5°	1	. .	·334	S. W.	56·0°
2	. .	·000	N. E.	43·0	**2**	+ 0·03	·011	N. E.	49·8
3	. .	·000	S. E.	48·0	3	. .	·671	N. W.	. .
4	. .	·003	S. E.	51·7	4	.	·081	W. S. W.	50·8
5	− 0·32	·000	S. E.	46·3	5	. .	·075	S. W.	52·2
6	. .	·000	S. E.	. .	6	. .	·107	S. S. W.	54·9
7	. .	·000	S. E.	46·9	7	. .	·470	S. W.	48·9
8	. .	·108	S. W.	52·6	8	. .	·005	S. W.	53·2
9	. .	·169	W.	38·9	**9**	+ 1·00	·291	S. W.	53·3
10	. .	·291	S. E.	44·2	10	. .	·265	W.	. .
11	. .	·094	S. S. E.	56·9	11	. .	·400	S. S. W.	53·7
12	− 0·36	·000	S. W.	56·9	12	. .	·590	S.	55·1
13	. .	·148	W. S. W.	. .	13	. .	·128	S. W.	49·7
14	. .	·000	E. S. E.	50·3	14	. .	·147	S.	49·0
15	. .	·007	S. S. W.	53·8	15	. .	·102	S. E.	51·0
16	. .	·328	W.	54·5	**16**	+ 0·63	·085	S. E.	54·1
17	. .	·325	S. W.	51·9	17	. .	·001	E.	. .
18	. .	·058	S. E.	52·6	18	. .	·000	W.	54·3
19	− 0·28	·016	S. S. W.	54·5	19	. .	·003	E.	54·1
20	. .	·000	S. S. W.	. .	20	. .	·061	N. E.	51·3
21	. .	·000	S. E.	57·5	21	. .	·002	W. N. W.	53·3
22	. .	·075	S. E.	58·9	22	. .	·102	S. E.	55·9
23	. .	·392	S. S. W.	56·4	**23**	− 0·70	·173	W. N. W.	50·4
24	. .	·223	W.	51·6	24	. .	·000	S. W.	. .
25	. .	·028	S.	55·0	25	. .	·266	N. W.	53·6
26	− 0·48	·033	W.	50·5	26	. .	·003	S. W.	51·8
27	. .	·024	S. W.	. .	27	. .	·059	S. W.	53·3
28	. .	·601	W. N. W.	39·9	28	. .	·002	S. W.	51·3
29	. .	·026	W. S. W.	44·2	29	. .	·145	N. W.	50·4
30	. .	·003	W.	43·5	**30**	− 1·03	·014	N. W.	48·8
31	. .	·169	E. S. E.	48·3					
		3·124					4·593		

DUBLIN MAGNETICAL OBSERVATORY, 1860.

JULY.					AUGUST.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.	Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.
	Inches.	Inches.				Inches.	Inches.		
1	. .	·000	N. W.	. .	1	. .	·000	N. W.	54·1°
2	. .	·000	N. W.	53·2°	2	. .	·048	N. W.	54·7
3	. .	·000	N. W.	57·7	3	. .	·333	N. W.	58·7
4	. .	·000	N. W.	55·5	**4**	– 0·53	·069	N. W.	54·5
5	. .	·000	N. W.	58·2	5	. .	·000	S.	. .
6	. .	·000	N. N. W.	53·8	6	. .	·215	N. E.	48·2
7	– 1·13	·000	N. W.	57·6	7	. .	·211	N. W.	49·9
8	. .	·001	E.	. .	8	. .	·117	N. W.	53·3
9	. .	·000	E. S. E.	56·1	9	. .	·061	N. W.	50·2
10	. .	·000	E. S. E.	58·3	10	. .	·000	S. S. W.	54·9
11	. .	·420	W.	61·5	**11**	– 0·53	·068	N. W.	53·1
12	. .	·016	S. W.	59·5	12	. .	·104	S.	. .
13	. .	·000	S. S. E	55·2	13	. .	·057	S. E.	51·1
14	– 0·66	·078	W. S. W.	57·7	14	. .	·000	N. E.	58·7
15	. .	·374	S. W.	. .	15	. .	·003	N. E.	60·0
16	. .	·008	N. W.	55·0	16	. .	1·302	S. E.	58·9
17	. .	·000	E. N. E.	56·3	17	. .	·136	N. W.	52·7
18	. .	·018	S. S. E.	56·8	**18**	+ 1·40	·535	N. W.	54·5
19	. .	·017	N. W.	55·4	19	. .	·003	S. W.	. .
20	. .	·082	N. W.	51·0	20	. .	·129	N. W.	54·7
21	+ 0·62	1·083	N. E.	54·3	21	. .	·001	N. W.	53·9
22	. .	·135	N. N. W.	. .	22	. .	·690	N. W.	55·1
23	. .	·007	N. W.	54·7	23	. .	·085	S. W.	52·6
24	. .	·143	N. N. W.	50·3	24	. .	·182	S. W.	54·7
25	. .	·001	N. N. W.	50·7	**25**	+ 0·40	·010	S. W.	51·8
26	. .	·000	N. W.	49·6	26	. .	·001	S. W.	. .
27	. .	·005	S. W.	58·3	27	. .	·000	N. W.	51·3
28	– 0·58	·035	N. W.	52·4	28	. .	·136	S. E.	56·2
29	.	·000	N. N. W.	. .	29	. .	·116	S.	51·0
30	. .	·001	W.	52·8	30	. .	·112	W.	51·2
31	. .	·007	N. N. W.	55·2	31	. .	·021	N. W.	51·1
		2·431					4·745		

DUBLIN MAGNETICAL OBSERVATORY, 1860.

SEPTEMBER.					OCTOBER.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.	Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.
	Inches.	Inches.				Inches.	Inches.		
1	– 0·98	·001	N. W.	53·1°	1	. .	·002	N. W.	47·3°
2	. .	·273	N. W.	. .	2	. .	·003	N. W.	49·8
3	. .	·001	N. W.	50·5	3	. .	·007	N. W.	45·6
4	. .	·000	N. W.	53·5	4	. .	·008	N. W.	49·3
5	. .	·054	N. W.	55·9	5	. .	·024	N. W.	56·1
6	. .	·001	S. E.	61·4	**6**	– 0·66	·001	N. W.	56·1
7	. .	·006	S. E.	61·5	7	. .	·050	N. E.	. .
8	– 0·25	·008	N. W.	57·6	8	. .	·000	W.	43·4
9	. .	·003	N. E.	. .	9	. .	·008	W. N. W.	36·4
10	. .	·331	N. E.	46·4	10	. .	·276	S. W.	53·3
11	. .	·001	N. N. E.	46·4	11	. .	·159	W. S. W.	41·4
12	. .	·011	S. S. W.	49·6	12	. .	·000	S. W.	39·4
13	. .	·000	S. S. E.	49·4	**13**	– 0·13	·008	S. W.	46·8
14	. .	·154	S. W.	46·2	14	. .	·076	W. N. W.	. .
15	+ 0·14	·669	N. W.	49·7	15	. .	·020	S. W.	58·0
16	. .	·008	S.	. .	16	. .	·042	S. W.	43·4
17	. .	·253	N. W.	48·8	17	. .	·026	S. W.	45·0
18	. .	·001	S. W.	48·8	18	. .	·510	S. W.	51·3
19	. .	·219	S.	57·2	19	. .	·002	S. W.	51·3
20	. .	·091	S. S. W.	52·7	**20**	+ 0·11	·135	S. W.	44·9
21	. .	·005	S. S. W.	48·4	21	. .	·000	S.	. .
22	+ 0·20	·392	S. W.	48·4	22	. .	·019	S. S. W.	55·6
23	. .	·007	S. W.	. .	23	. .	·142	S. S. W.	53·1
24	. .	·020	W.	45·7	24	. .	·001	S.	51·1
25	. .	·002	W.	48·9	25	. .	·000	S. W.	52·0
26	. .	·000	S. E.	49·6	26	. .	·000	S.	52·7
27	. .	·128	E. N. E.	49·6	**27**	– 0·22	·148	N. W.	45·6
28	. .	·002	N.	44·1	28	. .	·166	N. N. W.	. .
29	– 0·47	·001	N.	47·3	29	. .	·220	N. E.	51·4
30	. .	·005	W.	. .	30	. .	·198	S. E.	55·5
31	. .				31	. .	·020	S. S. E.	50·5
		2·647					2·271		

DUBLIN MAGNETICAL OBSERVATORY, 1860.

NOVEMBER.					DECEMBER.				
Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.	Day.	Rain, minus Evaporation.	Rain.	Direction of Wind.	Dew Point.
	Inches.	Inches.				Inches.	Inches.		
1	. .	·004	S. E.	48·9°	**1**	+ 1·27	·365	S.	45·0°
2	. .	·001	S. E.	45·9	2	. .	·125	S. W.	. .
3	+ 0·35	·008	S. E.	44·4	3	. .	·350	S. E.	48·2
4	. .	·001	S. E.	. .	4	. .	·393	N. N. E.	45·7
5	. .	·000	S. E.	38·8	5	. .	·001	S. S. W.	41·1
6	. .	·000	S. E.	38·2	6	. .	·290	S. S. W.	48·0
7	. .	·000	S. E.	40·2	7	. .	·006	S. S. E.	45·1
8	. .	·000	S. E.	39·6	**8**	+ 1·20	·282	S. S. W.	44·3
9	. .	·128	E. S. E.	37·9	9	. .	·068	S. W.	. .
10	− 0·22	·162	S. E.	41·3	10	. .	·001	N. W.	41·0
11	. .	·492	E. N. E.	. .	11	. .	·011	N. W.	39·6
12	. .	·001	E. N. E.	40·9	12	. .	·008	N. W.	35·7
13	. .	·001	N. E.	40·0	13	. .	·017	N. W.	41·2
14	. .	·010	S.	42·6	14	. .	·001	S. S. E.	37·2
15	. .	·010	S. W.	39·0	**15**	+ 0·02	·014	N.	42·7
16	. .	·002	S. W.	37·2	16	. .	·000	N. W.	. .
17	+ 0·20*	·005	W. S. W.	28·8	17	. .	·017	N. W.	31·5
18	. .	·000	S. W.	. .	18	. .	·001	N. W.	28·0
19	. .	·001	S. S. W.	39·2	19	. .	·015	N. W.	25·4
20	. .	·072	S. S. E.	45·8	20	. .	·004	N. W.	24·7
21	. .	·349	S. S. W.	48·1	21	. .	·070	N. W.	25·9
22	. .	·002	S. W.	41·9	**22**	+ 0·50†	·130	N. W.	24·5
23	. .	·176	N. N. E.	42·3	23	. .	·000	N. W.	. .
24	+ 0·49	·070	N. E.	38·9	24	. .	·000	N. W.	22·7
25	. .	·005	E. S. E.	. .	25	. .	·000	N. E.	*Christmas.*
26	. .	·127	N. E.	35·4	26	. .	·000	S. E.	
27	. .	·324	E. N. E.	37·8	27	. .	·087	S. S. E.	
28	. .	·200	S. E.	40·0	28	. .	·009	S. E.	
29	. .	·554	S. S. E.	46·7	**29**	‡	·700	S. E.	
30	. .	·198	S. E.	43·5	30	. .	·200	S. E.	
					31	. .	·006	S. E.	
		2·903					3·171		

* Three-tenths of an inch of ice. † Water all frozen.
‡ Glass receiver of rain-gauge burst, owing to a sudden thaw.

From this Table the following has been prepared, showing the amount of Evaporation and Rain-fall for each week during the year.

Evaporation and Rain-fall in Dublin, for each week of the year 1860.

Week.			Evapo-ration.	Rain-fall.	Week.			Evapo-ration.	Rain-fall.
			Inches.	Inches				Inches.	Inches.
I.	January	7	0·273	0·773	XXVI.	June	30	1·519	0·489
II.	„	14	0·221	0·761	XXVII.	July	7	1·130	0·000
III.	„	21	0·382	0·782	XXVIII.	„	14	1·175	0·515
IV.	„	28	0·542	1·542	XXIX.	„	21	0·962	1·582
V.	February	4	0·061	0·111	XXX.	„	28	0·906	0·326
VI.	„	11	0·340	0·370	XXXI.	August	4	0·988	0·458
VII.	„	18	0·295	0·065	XXXII.	„	11	1·202	0·672
VIII.	„	25	0·360	0·020	XXXIII.	„	18	0·737	2·137
IX.	March	3	0·615	0·395	XXXIV.	„	25	0·700	1·100
X.	„	10	0·467	0·287	XXXV.	September	1	1·367	0·387
XI.	„	17	0·437	0·917	XXXVI.	„	8	0·593	0·343
XII.	„	24	0·871	0·871	XXXVII.	„	15	1·029	1·169
XIII.	„	31	0·618	0·478	XXXVIII.	„	22	0·769	0·969
XIV.	April	7	0·938	0·348	XXXIX.	„	29	0·630	0·160
XV.	„	14	0·795	1·135	XL.	October	6	0·710	0·050
XVI.	„	21	1·068	0·018	XLI.	„	13	0·631	0·501
XVII.	„	28	0·978	0·238	XLII.	„	20	0·701	0·811
XVIII.	May	5	1·207	0·887	XLIII.	„	27	0·530	0·310
XIX.	„	12	1·022	0·662	XLIV.	November	3	0·267	0·617
XX.	„	19	1·162	0·882	XLV.	„	10	0·511	0·291
XXI.	„	26	1·231	0·751	XLVI.	„	17	0·321	0·521
XXII.	June	2	1·143	1·173	XLVII.	„	24	0·180	0·670
XXIII.	„	9	0·700	1·700	XLVIII	December	1	0·503	1·773
XXIV.	„	16	1·087	1·717	XLIX.	„	8	0·247	1·447
XXV.	„	23	1·042	0·342	L.	„	15	0·100	0·120

In the diagram (Plate XVII.), I have laid down the curve of evaporation from this Table; the abscissæ being measured in weeks, and the ordinates in tenths of inches. It is clearly seen from the curve that the evaporation, unlike the rain-fall, depends directly on the sun's declination, reaching its maximum of 1·2 inches per week at the summer solstice, and its minimum of 0·2 inches per week at the winter solstice. I have not been able to obtain returns of evaporation from other stations suitable for comparison with this; but I have no doubt that, if similar observations were made in other meteorological observatories, many results of the highest interest would be obtained. Among these results, the most important is the coefficient of evaporation of water depending on the latitude.

I was anxious, before publishing the foregoing results, to ascertain whether the vessel, being made of glass, influenced the result in any important respect, and therefore placed a cylindrical earthenware vessel, 17½ inches in diameter, in the same place, on the 7th of March, 1861, pouring into it water to the depth of 10 inches. The following Table gives the depth of water in this vessel at various times during the year.

The final result for the entire year shows that the rain-fall exceeded the evaporation by 0·543 inches.

Large Cylindrical Rain and Evaporation Gauge (17½ *in. diam.*), *adjusted with* 10 *in. of Water for Zero Point, and placed on Roof of Magnetical Observatory March* 7, 1861.

Observed.	Inches.
April 5, 1861,	11·80
May, 4, 1861,	8·10
June, 8, 1861,	7·10
October 9, 1861,	11·20
November 23, 1861,	11·90
January 18, 1862,	11·90
March 8, 1862,	11·80
7	73·80
Evaporation nearly equal to Fall,	10·543

I also placed, March 1, 1861, a tapering earthenware vessel, whose section at rain (rain area) was 16½ in., and at water level (5½ inches from bottom) was 13½ inches.

The rain-fall-area in this case was therefore greater than the evaporation-area, in the proportion of $(16\frac{1}{2})^2$ to $(13\frac{1}{2})^2$; but there was also evaporation from the wetted conical surface. The result of fifty-three weeks' observation is given below.

Conical Rain and Evaporation Gauge, adjusted with 5½ inches of Water for Zero Point, and placed on Roof of Magnetical Observatory, March 1, 1861.

Observed.	Inches.
April 5, 1861, ...	8·65
May 4, 1861, ...	3·60
June 8, 1861, ...	3·00
October 9, 1861, ...	8·40
November 23, 1861, ...	8·05
January 18, 1862, ...	8·04
March 8, 1862, ...	7·90
7	47·64
	6·806

This result gives for the fifty-three weeks an excess of rain-fall over evaporation of 1·306 inches. But during the first week of exposure, March 1 to March 8, 1861, and which is not included in the record of the cylindrical gauge, 1·717 inches of rain fell; showing that, probably, an inch should be taken off the excess just given.

If this reasoning be correct, it would serve to show that the evaporation from the sloping side of the gauge compensated the diminished area of the water surface.

Observatory Rain Gauge.

Observed.	Rain.
March 1, 1861, ...	0·086
„ 2, „	0·214
„ 3, „	1·020
„ 4, „	0·125
„ 5, „	0·002
„ 6, „	0·040
„ 7, „	0·230
	1·717 in.

Appendix on the difference between Evaporation and Rain-Fall at Enniskillen.

The following observations were made by the Rev. William Steele, in the garden of the Royal School of Portora, near Enniskillen, by means of a cylindrical tinned vessel, 10 in. diameter, placed 10 ft. above the level of the ground, on the stump of a tree cut down for the purpose.

From the 15th of March, 1860, to the 17th of March, 1861, the rain-fall exceeded the evaporation during nine months, the exceptions being April, July, and September, during which months the evaporation exceeded the rain-fall by 2·67 inches; and during the remaining nine months of the year, the rain-fall exceeded the evaporation by 11·38 in., thus leaving a balance in favour of rain-fall of 8·71 inches in the entire year.

Examination of the Vessel of Water every Five Days, commencing Tuesday, March 15, 1860.

MARCH	15,	0·00
"	20,	+ 0·20
"	25,	+ 0·60
"	30,	+ 0·15
		+ 0·95
APRIL	4,	+ 0·15
"	9,	+ 0·15
"	14,	(Under repair.)
"	19,	− 0·45
"	29,	− 0·175
		− 0·32
MAY	14,	+ 0·40
"	19,	+ 0·925
"	24,	− 0·10
"	29,	+ 0·50
		+ 1·72
JUNE	3,	+ 0·458
"	8,	+ 0·110
"	13,	+ 0·145
"	23,	+ 0·35
"	28,	+ 0·40
		+ 1·46
JULY	3,	− 0·30
"	8,	− 0·60
"	13,	− 0·20
"	18,	− 0·25
"	23,	− 0·10
"	28,	− 0·30
		− 1·75
AUGUST	2,	+ 0·15
"	6,	− 0·10
Carried forward,		+ 0·05
Brought forward,		+ 0·05
"	11,	+ 0·20
"	16,	+ 0·40
"	21,	+ 0·60
"	26,	+ 0·70
"	31,	− 0·10
		+ 1·85
SEPTEMBER	5,	− 0·30
"	10,	− 0·25
"	15,	− 0·05
"	20,	+ 0·35
"	25,	− 0·10
"	30,	− 0·25
		− 0·60
OCTOBER	5,	− 0·15
"	10,	+ 0·25
"	15,	+ 0·65
"	20,	+ 0·30
"	25,	+ 0·15
"	30,	+ 0·15
		+ 1·35
NOVEMBER	4,	− 0·25
"	9,	− 0·20
"	14,	+ 0·10
"	19,	+ 0·15
"	24,	+ 0·50
"	29,	+ 0·35
		+ 0·65
DECEMBER	4,	+ 0·45
"	9,	+ 0·75
"	14,	− 0·05
(Frozen for a long time.)		
		+ 1·15

January	16,	− 0·10
,,	21,	− 0·10
,,	26,	+ 0·15
,,	31,	+ 0·25
		+ 0·20
February	5,	+ 0·15
,,	10,	− 0·25
,,	15,	+ 0·15
,,	20,	+ 0·55
,,	25,	− 0·05
		+ 0·55

March	2,	+ 0·35
,,	7,	+ 0·40
,,	12,	+ 0·55
,,	17,	+ 0·20
,,	22,	+ 0·45
,,	27,	− 0·15
		+ 1·80
April	1,	+ 0·50
,,	6,	− 0·25

Mr. Edward Clibborn read a paper—

ON THE PARTIAL COMBUSTION OF FLUID IRON, DESCRIBED BY MANDELSLO IN 1639; AND OF SOLID IRON, NOW PUBLICLY PRACTISED IN DUBLIN BY MEANS OF A COLD BLAST OF COMMON AIR.

The first process referred to in the title of this communication is described at p. 160 of the English version of Mandelslo's travels, published in London, in 1669. We there find that "They (*the Japanese*) have, among others, a particular invention for the melting of iron, without the using of fire, casting it into a tun done about on the inside with about half a foot of earth, where they keep it (*melting**) with continual blowing, and take it out by ladles full, to give it what form they please, much better and more artificially than the inhabitants of Liege are able to do." When these remarks were written in 1639, this city produced the best fabrics in iron then manufactured in Europe.

To a cursory reader this extract conveys the notion, that the Japanese, amongst other processes for working the metals, then unknown in Germany, were acquainted with one which enabled them to melt iron without the use of fire in any form. But a judicious person, acquainted with the iron manufacture, will perceive that the words, "*casting it* (the iron) *into a tun*" qualify the previous statement, "*without the using of fire;*" for they imply that the iron, having been previously melted by fire, was afterwards cast, in the liquid state, not into wooden flasks or boxes of various shapes and sizes, containing sand moulds, in which the melted iron would, under ordinary treatment, have been allowed to remain at rest, and cool, and harden into all sorts of shapes, with or without the impact of air, in the Japanese plan, on the contrary, was, "cast" into, or allowed to flow from a melting furnace into an open wooden "tun," or large tub, such as might have been used in a German brew-house about 230 years ago. This tun was lined internally, as he tells us, "with about half a foot of earth," or fire-clay, and not moulding sand. This clay, from its tenacity, was necessary to fit it for the purpose. It was not superficial or common earth, but a sort of fire-lute, not only capable of

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* The context shows that this word is understood.

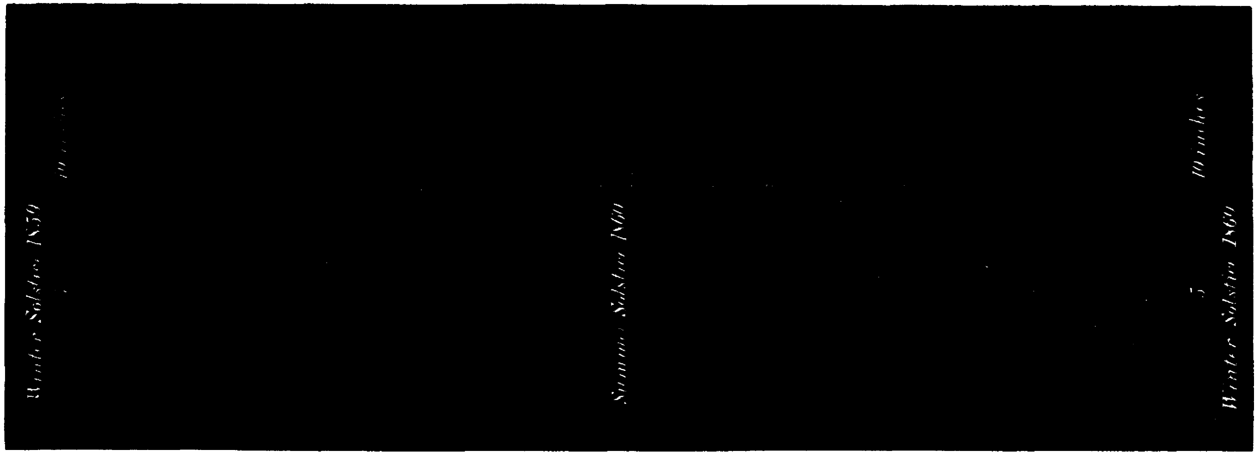

DIAGRAM OF THE EVAPORATION CURVE AT THE DUBLIN MAGNETICAL OBSERVATORY, FOR THE YEAR 1860.

[Abscissæ measured in weeks. Ordinates measured in tenths of inches.]